

Docket No.: M4065.0904/P904  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Chandra Mouli

Application No.: 10/602,716

Group Art Unit: 2811

Filed: June 25, 2003

Examiner: Colleen Ann Matthews

For: TAILORING GATE WORK-FUNCTION IN  
IMAGE SENSORS

Allowed: September 24, 2007

**REQUEST FOR ACKNOWLEDGEMENT OF REFERENCES CITED**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Dear Sir:

Applicants' undersigned representatives respectfully request that the Examiner acknowledge the references cited on Forms PTO/SB/08a/b originally filed on September 26, 2003, December 14, 2004 and December 8, 2006 along with the Information Disclosure Statements. Copies of the original submissions along with copies of the PTO stamped postcard receipts, are being filed herewith for convenience.

Dated: October 17, 2007

Respectfully submitted,

By 

Thomas J. D'Amico

Registration No.: 28,371  
DICKSTEIN SHAPIRO LLP  
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Attorneys for Applicant

**Inventor:** Chandra Mouli

**Atty Docket No.:** M4065.0904/P904 ✓

**Application No.:** 10/602,716-Conf. #9955

**Filing Date:** June 25, 2003

**Title:** TAILORING GATE WORK-FUNCTION IN IMAGE SENSORS

**Documents Filed:**

IDS (Citation) by Applicant (1 page) w/4 references

Information Disclosure Statement (2 pages)



**Via:** Daily PTO Run

**Sender's Initials:** TJD/EP/KI

**Date:** September 26, 2003

*m.b.*

Docket No.: M4065.0904/P904  
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Patent Application of:  
Chandra Mouli

Application No.: 10/602,716

Confirmation No.: 9955

Filed: June 25, 2003

Art Unit: 2811

For: TAILORING GATE WORK-FUNCTION  
IN IMAGE SENSORS

Examiner: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is filed before the mailing date of a first Office Action on the merits as far as is known to the undersigned (37 CFR 1.97(b)(3)).

A copy of each reference on PTO/SB/08 is attached.

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. In accordance with 37 CFR 1.97(h), the filing of this Information Disclosure statement shall not be construed to be an

admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

It is submitted that the Information Disclosure Statement is in compliance with 37 CFR 1.98 and the Examiner is respectfully requested to consider the listed references.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1073, under Order No. M4065.0904/P904.

Dated: September 26, 2003

Respectfully submitted,

By 

Thomas J. D'Amico

Registration No.: 28,371

Elizabeth Parsons

Registration No.: 52,499

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Attorneys for Applicant

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>			<b>Complete if Known</b>		
			Application Number	10/602,716-Conf. #9955	
			Filing Date	June 25, 2003	
			First Named Inventor	Chandra Mouli	
			Art Unit	2811	
			Examiner Name	Not Yet Assigned	
Sheet	1	of	1	Attorney Docket Number	M4065.0904/P904

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	CA	Nadia Lifshitz – "Dependence of the Work-Function Difference Between the Polysilicon Gate and Silicon Substrate on the Doping Level in Polysilicon," IEEE Transactions on Electron Devices, Vol. Ed-32, No. 3, March 1985.	
	CB	Tsu-Jae King et al. – "Electrical Properties of Heavily Doped Polycrystalline Silicon-Germanium Films," IEEE Transactions on Electron Devices, Vol. 41, No. 2, February 1994.	
	CC	Sunetra Mendis et al. – "CMOS Active Pixel Image Sensor," IEEE Transactions on Electron Devices, Vol. 41, No. 3, March 1994.	
	CD	R. H. Nixon et al. – "256 x 256 CMOS Active Pixel Sensor Camera-on-a-Chip," IEEE Journal of Solid-State Circuits, Vol. 31, No. 12, December 1996.	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

**Inventor:** Chandra Mouli

**Atty Docket No.:** M4065.0904/P904 ✓

**Application No.:** 10/602,716-Conf. #9955      **Filing Date:** June 25, 2003  
**Title:** TAILORING GATE WORK-FUNCTION IN IMAGE SENSORS

**Documents Filed:**

Sup. Information Disclosure Statement (2 pages)

Sup. IDS Citation (1 page) w/8 references



**Via:** Daily PTO Run

**Sender's Initials:** TJD/EP/KI

*CBC 12-14-04*

**Date:** December 14, 2004

Docket No.: M4065.0904/P904  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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In re Patent Application of:  
Chandra Mouli

Application No.: 10/602,716

Confirmation No.: 9955

Filed: June 25, 2003

Art Unit: 2811

For: TAILORING GATE WORK-FUNCTION  
IN IMAGE SENSORS

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Examiner: D. Kang

**SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT (IDS)**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In accordance with 37 CFR 1.97, Applicant hereby makes of record the following additional documents. A PTO Form SB/08 and a full copy of each of the documents required under 37 CFR 1.98(a)(2) accompany this statement.

Applicant has become aware of the following documents, cited in an International Search Report issued November 30, 2004, in international application no. PCT/US2004/020010, which corresponds to the above referenced application, and in accordance with 37 CFR 1.97(c) and (e)(1) or (b)(3), hereby submits these documents for the Examiner's consideration. These documents are cited on the enclosed PTO Form SB/08, and a copy of the International Search Report and of each document required under 37 CFR 1.98(a)(2) cited thereon are enclosed as well.

This statement is not to be interpreted as a representation that the cited documents are material, that an exhaustive search has been conducted, or that no other relevant information exists. Nor shall the citation of any document herein be construed *per*

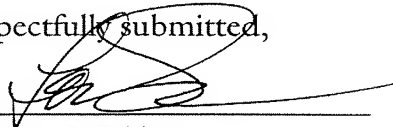
se as a representation that such document is prior art. Moreover, Applicant understands the Examiner will make an independent evaluation of the cited documents.

The undersigned hereby certifies that each item contained in this Supplemental Information Disclosure Statement was cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Supplemental Information Disclosure Statement. Furthermore, in accordance with 37 CFR 1.704(d), Applicant notes that to our knowledge this communication was not received by any individual designated in 1.56(c) more than thirty days prior to the filing of this statement.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1073, under Order No. M4065.0904/P904.

Dated: December 14, 2004

Respectfully submitted,

By 

Thomas J. D'Amico

Registration No.: 28,371

Elizabeth Parsons

Registration No.: 52,499

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Washington, DC 20037-1526

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Attorneys for Applicant



Substitute for form 1449A/B/PTO				<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>				Application Number	10/602,716-Conf. #9955
				Filing Date	June 25, 2003
				First Named Inventor	Chandra Mouli
				Art Unit	2811
				Examiner Name	D. Kang
Sheet	1	of	1	Attorney Docket Number	M4065.0904/P904

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	AA	2002/0190287	12/19/2002	Mann et al.	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
	BA	EP 0 798 785	10/01/1997			
	BB	JP 01-232765	09/18/1989			X

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	CA	Kim, K.T. et al. - "Tungsten Silicide/Titanium Nitride Compound Gate," June 4, 1990, Symposium on VLSI Technology, Honolulu, June 4-7, 1990, New York, IEEE, US, pgs 115-116.	
	CB	Long, Wei et al. - "Dual-Material Gate (DMG) Field Effect Transistor," May 1999, IEEE Transactions on Electron Devices, IEEE Inc. New York, US, pgs. 865-870.	
	CC	Ponomarev, Y.V. et al. - "Gate-Workfunction Engineering Using Poly-(Si,Ge) for High-Performance 0.18 $\mu$ m CMOS Technology," International Electron Devices Meeting 1997, IEDM Technical Digest, Washington, DC, Dec. 7-10, 1997, New York, NY, IEEE, US, 12/7/1997, pgs. 829-832.	
	CD	Yagishita, Atsushi et al. - "Dynamic Threshold Voltage Damascene Metal Gate MOSFET (DT-DMG-MOS) Technology for Very Low Voltage Operation of Under 0.7 V," IEEE Transactions on Electron Devices, IEEE Inc. New York, US, vol. 49, no. 3, March 2002, pgs. 422-428.	
	CE	International Search Report dated 11/30/2004.	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Examiner Signature		Date Considered	
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16

Atty Docket No.: M4065.0904/P904

Inventor: Chandra Mouli

Application No.: 10/602,716

Filing Date: June 25, 2003

Title: TAILORING GATE WORK-FUNCTION IN IMAGE SENSORS

**Documents Filed:**

Second Supplemental Information Disclosure Statement w/Form PTO SB/08, one reference and copy  
Korean Office Action w/translation

Via: PTO Daily Run

Sender's Initials: TJD/HJM/rrl

Date: December 8, 2006



*pur*

Docket No.: M4065.0904/P904  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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In re Patent Application of:  
Chandra Mouli

Application No.: 10/602,716

Art Unit: 2811

Filed: June 25, 2003

Examiner: Colleen Ann Matthews

For: TAILORING GATE WORK-FUNCTION IN  
IMAGE SENSORS

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**SECOND SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

U.S. Patent and Trademark Office  
Customer Window, Mail Stop Amendment  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Dear Sir:

Pursuant to 37 C.F.R. § 1.56, the Examiner's attention is directed to the additional reference listed on the attached Form PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of the above-captioned application and that the reference be made of record therein and appear among the "References Cited" on any patent to issue therefrom. A copy of the listed reference is attached.

The reference was cited in an Office Action, dated October 31, 2006, that issued in a corresponding Korean application. A copy of the Office Action also is attached, together with an English-language translation of same. It is to be noted that

two of the references cited in the Office Action, namely, U.S. Patent Application Publication No. 2002/0190287 and European Patent Application Publication No. EP0798785, were brought to the Examiner's attention in a Supplemental Information Disclosure Statement filed December 14, 2004.

This Second Supplemental Information Disclosure Statement is being filed before the mailing date of a final Office Action or a Notice of Allowance (37 C.F.R. § 1.97(c)).

Each item of information contained in this Second Supplemental Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Second Supplemental Information Disclosure Statement.

This Second Supplemental Information Disclosure Statement should not constitute an admission that any patent, publication or other information referred to herein is "prior art" unless specifically designated as such. In accordance with 37 C.F.R. § 1.97(g), the filing of this Second Supplemental Information Disclosure Statement should not be construed to mean that a search has been made. This Second Supplemental Information Disclosure Statement is believed to be in compliance with 37 C.F.R. § 1.98 and the Examiner is respectfully requested to consider the listed reference.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm), or credit any overpayment, to Deposit Account No. 04-1073, under Order No. M4065.0904/P904.

Dated: December 7, 2006

Respectfully submitted,

By 

Thomas J. D'Amico

Registration No. 28,371

DICKSTEIN SHAPIRO LLP

1825 Eye Street, NW

Washington, DC 20006-5403

(202) 420-2200

Attorneys for Applicant

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Substitute for form 1449/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>			<b>Complete if Known</b>		
			Application Number	10/602,716	
			Filing Date	June 25, 2003	
			First Named Inventor	Chandra Mouli	
			Art Unit	2811	
			Examiner Name	Colleen Ann Matthews	
Sheet	1	of	1	Attorney Docket Number	M4065.0904/P904

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	DA	BAOHONG CHENG et al., "The Impact of High-κ Gate Dielectrics and Metal Gate Electrodes on Sub-100 nm MOSFET's," IEEE Transactions on Electron Devices, Vol. 46, No. 7, July 1999, pp. 1537-1544	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Examiner Signature		Date Considered	
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